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The Potential of Conservation and Efficiency to Reduce Conflicts over Water

**Testimony of Dr. Peter H. Gleick¹
before the
Subcommittee on Water Resources and Environment
of the Committee on Transportation and Infrastructure
United States Congress**

Hearing: Water: Is it the 'Oil' of the 21st Century?

June 4, 2003

Mr. Chairman, Members: thank you for inviting me to offer comments on the importance of water for our nation and on new ways of thinking about protecting, preserving, and sustainably using that precious resource.

There are two ways to think about the title of this hearing: Is Water the Oil of the 21st Century? First, are we going to permit water to become a commodity like oil, to be overpumped, underpriced, and used wastefully, leading to water wars, international conflict and competition, and environmental destruction? Or second, can we avoid the problems that have resulted from our dependence on oil by planning for efficient use of water, environmental protection when we extract it and use it, proper allocation, and international cooperation.

My testimony will focus on one piece of what we call “the soft path for water” – improving the efficient and wise use of this precious resource. My single most important conclusion? **Water conservation and efficiency are the greatest untapped sources of water in this nation – cheaper, cleaner, and more politically acceptable than any other alternative.**

National Water Challenges

As we enter the 21st century, pressures on the water resources of the United States are growing and conflicts among water users are worsening. With these problems come

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new opportunities. Increased attention to water issues can be seen in this and other recent Congressional water hearings, the new Department of the Interior's *Water 2025* report, ongoing disputes with Mexico over our shared water resources, and responses to recent and severe droughts in many parts of the nation. Awareness of the importance of water is also growing internationally as shown by the focus on water at the Johannesburg Earth Summit and the Kyoto Third World Water Forum just two months ago, which drew tens of thousands of participants and ministers from 150 nations. This year has been declared the International Year of Freshwater by the United Nations.

In addition to growing tensions over allocations of water, the United States faces new water challenges. Controversy is developing over the proper role of expensive dams and infrastructure, private corporations, and local communities in managing water. Municipalities are faced with billions of dollars of infrastructure needs and growing disputes over the role of public and private water management – the city of Stockton, California just signed a 20-year privatization agreement for its water, while the city of Peoria, Illinois wants to buy their system back from its private operator. Arguments among western states over allocations of shared rivers are rising, as are tensions between cities and farmers over water rights, such as in the Klamath and Colorado River basins. Climate change is increasingly threatening the operation and design of our expensive water systems. The U.S. and Mexico have unresolved disagreements over border water resources, and our Canadian neighbors are concerned about proposals to divert Great Lakes or Canadian water for U.S. use. Communities are facing new challenges in meeting water quality standards and ensuring that safe drinking water is available for all.

Responding to Water Challenges: A New Focus on Reducing Wasteful and Inefficient Uses of Water

In many cases, the resolution of these problems requires smart state and local action. But national policies and actions are also needed, as is leadership at the national level. Unfortunately, there is inadequate attention being given to national water issues, and what efforts are being made are often contradictory or counterproductive. Responsibility for water is spread out over many federal agencies and departments, operating with no overall coordination. **The good news is that there are effective solutions.**

The focus of water planners and managers in the 20th century was finding ways “to increase water supplies in every region of the country.” This approach brought many benefits, but came with high – and growing – economic, environmental, and political costs. This cannot be our approach in the 21st century. Indeed, overall water supply is not a problem, with some regional exceptions. And even in these regions, increasing supplies is the most expensive, slow, and environmentally damaging response. The greatest



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water problems facing the United States are not lack of infrastructure, but inefficient use, inappropriate water allocations, water pollution, and ecological destruction.

Indeed, water use in the United States has decreased in the past 20 years, reducing pressures on overall supply, as shown in Figures 1 and 2, even as population and economic growth have continued. On a per-person basis, this decrease is substantial, as shown in Figure 3. **Per-capita use in the U.S. has decreased 20 percent since 1980 – a remarkable change.** Moreover, where the problem is “shortage,” the fastest, cheapest, and most environmentally acceptable solution will not be an increase in “supply” but improvements in efficiency to reduce waste and increase water-supply reliability.

Some examples of the effectiveness of efficiency and conservation improvements?

- Water use by citizens of southern California served by the Metropolitan Water District have cut water use 16 percent from 1990, despite a 14 percent **increase** in population.
- Smart conservation and smart watershed management has saved New York City billions of dollars in avoided expenditures for new supply and water and wastewater treatment plants. Total NYC water use in 2001 was **25 percent below the level of 1979**, a savings of 375 million gallons per day.²
- Water-efficiency programs in the Boston area have reduce water use 30 percent since the late 1980s and eliminated the need for a new dam.
- The City of Albuquerque has reduced per-capita water use 30 percent between 1989 and 2001 using only toilet and washing machine rebate programs, and landscape retrofits.³
- The City of Seattle has grown 30 percent since 1975 but total water use has remained the same through strong conservation programs. Over this period, per-capita use has dropped from 150 gallons per person per day to around 115 gallons per person per day.⁴
- Steel manufacturing in the United States used to require 200 tons of water to make a ton of steel. Today, the best steel plants use 3 to 4 tons of water to make a ton of steel.
- Drip irrigation and precision sprinkler systems can both boost crop yields and reduce water demands saving water and money for farmers.

What is particularly exciting and important is that **no water agency, city, or state has exploited the full potential for improving efficiency and reducing wasteful use.** In California, despite years of talk and many innovative actions, we estimate that

² <http://www.nyc.gov/html/dep/html/drougthtist.html>

³ <http://www.cabq.gov/progress/EP03PERC.html>

⁴ <http://www.cityofseattle.net/util/services/Drinkingwater/docs/Usage2001.PDF>



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additional cost-effective reductions in commercial and industrial water use of 40 percent are possible with existing technologies. Even greater savings are possible in the residential sector. And vast savings are possible in agriculture, while keeping a healthy and productive farming sector.

Capturing these savings will be faster, cheaper, and far more politically acceptable than any new supply option proposed, including new dams, desalination plants, or long-distance aqueducts.

The challenge is reducing unfair pricing structures that encourage wasteful use of water, investing in smart water-wise technology, recycling and reusing water for the right purposes, and educating people about the potential for using water wisely and the benefits of doing so.

Water conservation and efficiency not only makes sense, they make more sense than any other alternative available to us.

Thank you for your attention.

Dr. Peter H. Gleick⁵

⁵ For more information on global and national water issues, see [The World's Water 2002-2003](#) (published by Island Press, Washington, DC)

Figure 1. Total gross domestic product (GDP) of the United States and total water withdrawals: 1900 to present. **Note that total economic growth has continued, but total water withdrawals (for all purposes) have actually declined since 1980.** Graph reproduced from P.H. Gleick, 2000 "The World's Water" (Island Press, Washington, D.C.)

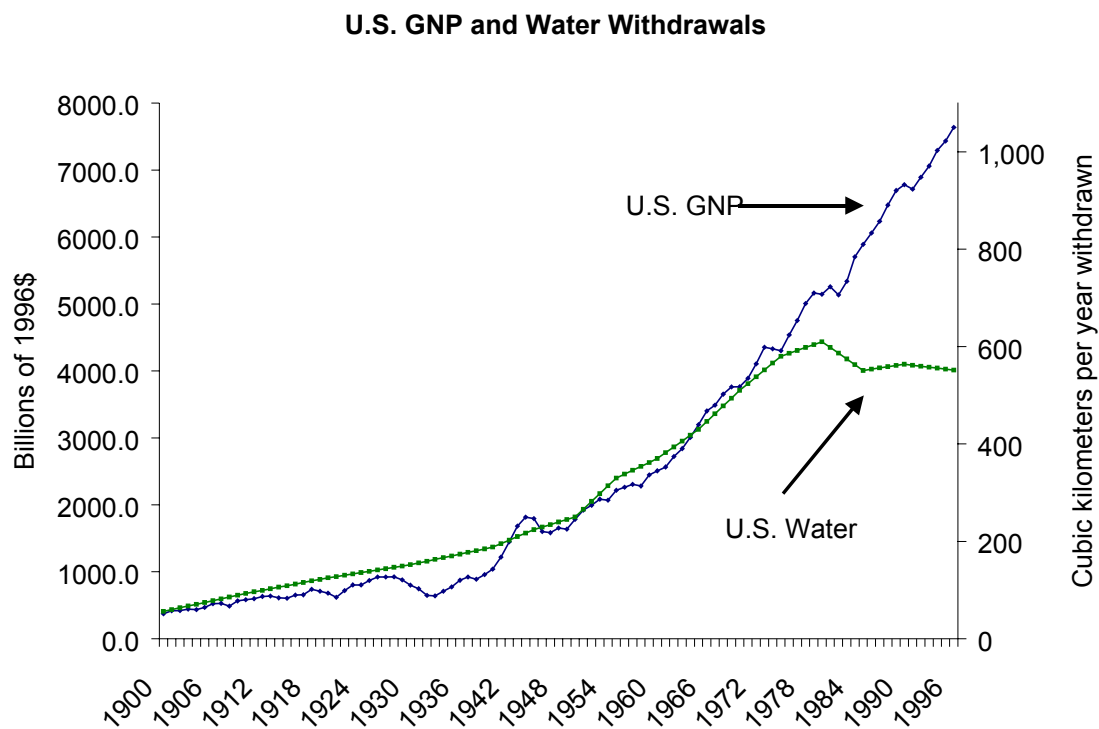


Figure 2. Total Water Withdrawals in the United States, 1900 to 1995, in billion gallons per day. Total withdrawals dropped 10 percent from 442 billion gallons per day in 1980 to 400 billion gallons per day in 1995 as water-use efficiency improved and the U.S. economy became more productive.

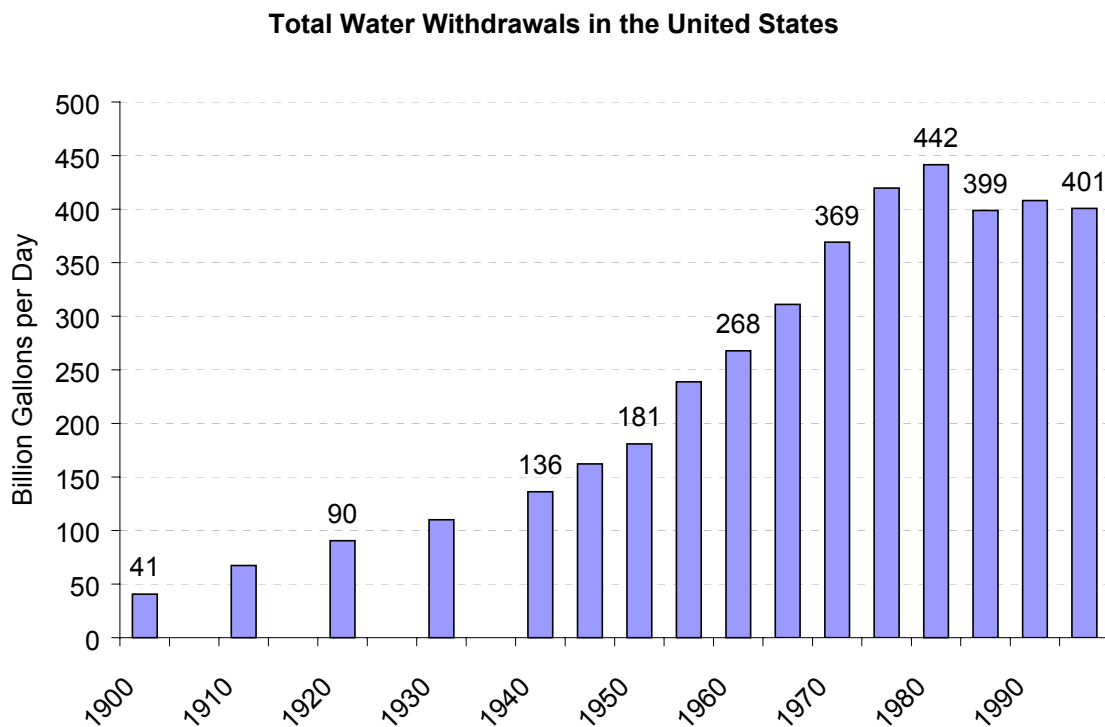


Figure 3. Per-capita water withdrawals in the United States, from 1900 to the present. Total use is now below 550,000 gallons per person per year, down from over 700,000 in 1975. Data are from the U.S. Geological Survey.

